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Miscellaneous and children

Chest rhabdomyosarcoma with local relapse. The integration of intraoperative radiotherapy as part of the multidisciplinary treatment

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Girl, 2½ years, chest embryonal rhabdomyosarcoma operated, followed by chemotherapy, 6 cycles of VAT. After the chemotherapy she developed a fast growing local recurrence involving the pericardium and great vessels. Tumor Board decided treatment with preoperative radiotherapy and chemotherapy followed by radical surgery and intraoperative radiotherapy. After radiochemotherapy treatment, the patient achieved a partial response. For virtual simulation prior to surgery and dosimetric preplanning of overprinting with intraoperative radiotherapy to the surgical bed, we have been used a simulator developed in Spain through the collaboration of several Health Centers, Universities and private industry. We shown surgical and radiotherapy procedures, results and tolerance.

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Intraoperative radiotherapy (IORT)

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Intraoperative radiotherapy (IORT) may be defined as a form of radiotherapy based on the administration, during surgery, a high single dose of radiation on a surgical bed or unresectable tumor, while separating surrounding healthy tissues from the beam radiation. This is ultimately a high precision technique dosimetric quality (homogeneity in the dose) for intensifying the treatment. The IORT has been used in the management of unresectable tumors, tumors resectable residual disease and, in combination with chemoradiation and chemotherapy in tumors with a high risk of local recurrence. Conducting IORT techniques require the availability of a multidisciplinary team coordinated and adequately trained and hospital unit with accurate infrastructure and equipment. The advantages can be summarized as: (1) Convenience: IORT allows both surgery and radiation therapy are completed in a single therapeutic act. So it disaappears risks associated with lack of compliance with an entire conventional radiotherapy and prolonged delays associated treatments such as hormone therapy and chemotherapy. (2) Biological efficacy: IORT allows the radiation dose to be applied directly to the surgical margins which eliminates the risk of residual tumor geographical loss. (3) Safety: IORT allows the surgeon and radiation oncologist minimize exposure of healthy tissue to radiation which results in a clear reduction in the risk of toxicity. (4) Cost: IORT allows management of the entire radiotherapy treatment in a single dose which is a clear decrease in time compared to conventional treatment (1 day versus 6–7 weeks). The continuing advances in applications, technology and methodology of Radiation Oncology has raised the level of complexity of this specialty. IORT has not been immune to this process and provides an excellent platform for innovation and research in the multidisciplinary management of cancer.

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